Clinical Medicine

General Practice

Porphyria

Radium and X-Ray Therapy

Syphilitic Aortitis

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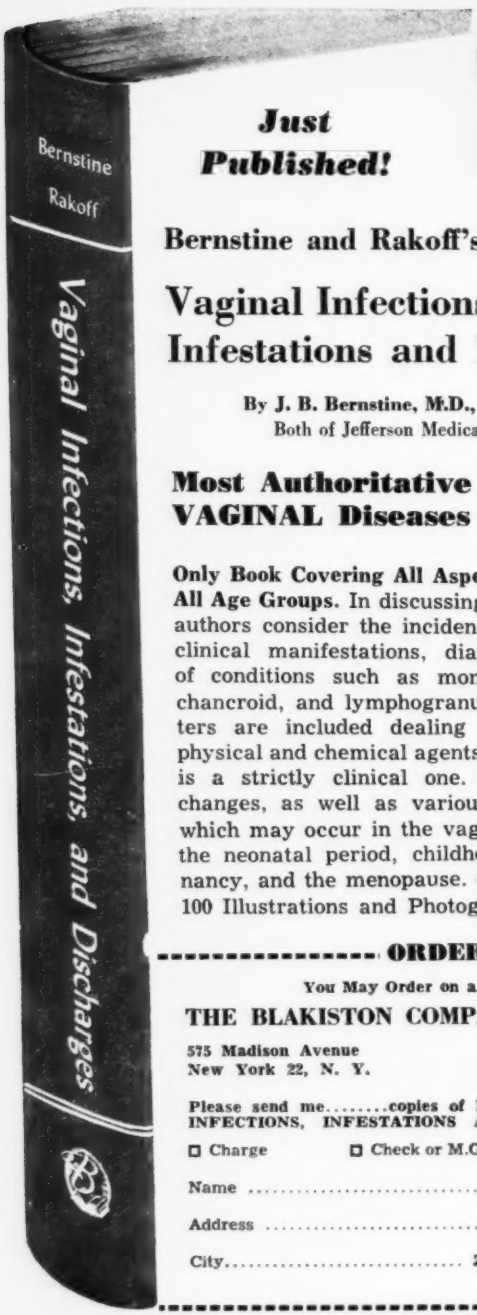

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EDITORIAL

The Field of General Practice

PAUL WILLIAMSON, M.D., *Memphis, Tennessee*

With renewed interest in the general practitioner becoming apparent in all segments of American Medicine, the field of general practice becomes a consideration for definition. Just what shall the general practitioner do? Just how far shall he go in the care of patients? This, of course, must remain an individual matter and depends very largely upon individual training. One fact, however, that is frequently missed in discussing such a problem is the fact that 80 per cent of diseases prevalent in America today are of simple, uncomplicated nature and respond well to exhibition of the remedies known to all physicians.

PSYCHOSOMATIC ASPECT OF GENERAL PRACTICE

One should admit that the majority of diagnoses are easily made. There is a third factor, too, that becomes important in considering the field of general practice. Many people come to their physician for relief of fear and relief of worry. No thinking physician who has had experience in practice would deny for a minute that the majority of American medical practice is psychosomatic. To those of us who have spent a few years dealing with the public, the term "psychosomatic" frequently takes on a connotation akin to "worried people."

In the writer's own general practice approximately 60 per cent of the patients seen had little or no organic pathology but the problems of everyday living; the problems that occur to all of us during our lives, were the things that brought them to the doctor. They sought not organic medical care but friendship and understanding and appreciation of their problems.

If these facts be true—and they are nearly universally agreed upon —then the field of the general practitioner encompasses from 80 to 90

per cent of the medical problems of any community. Any physician worthy of the name will refuse to care for disease beyond his ken and will seek the advice of better trained men whenever necessary. It is, however, an undeniable fact that young men have been encouraged to seek help perhaps too much. In the training of physicians we have frequently emphasized the organic, the difficult, the complex, the unusual, to the point where the physician comes to doubt the very existence of the simple, the everyday entities of general practice. The writer does not mean that a physician will doubt these entities after having been in practice. Referral here is to young and recently graduated physicians.

FEAR OF GENERAL PRACTICE

We have come to believe that the average student shuns general practice not because he does not like the conditions under which the general practitioner works, but because he is afraid that he is not capable adequately to care for the population of the small town. This, we believe, is not true.

All too frequently, the young man enters the small town afraid of the implications of practice and afraid to trust his own judgment. By the very nature of such practice he is forced to trust his own judgment; he is forced to trust occasionally his surgical technique and he finds that the results are quite good. Then, all too often, he lets all bars down and tries anything and everything. This is not proper and should not be condoned by the medical profession, but we believe it is less the fault of the young man than the fault of his training.

RETURN OF THE FAMILY DOCTOR

Fortunately most of the more progressive medical schools of the United States are beginning intensive programs to fit the young man for general practice in rural communities. It would be the contention of all of us that the field of general practice offers more service opportunities to the young doctor than any other field. It has been statistically proven that the worst served area is that area in which no general practitioner is located, and it is being proven daily that the American public demands return of the family doctor. This is not to say that the public demands the standards of medical care that existed thirty years ago, but that they demand the relationship that existed between the family doctor and his patients.

This relationship is difficult of analysis. There are probably no words which can explain the deep and abiding trust and affection that has existed and sometimes exists today between the family doctor and his patients. This relationship has been and probably will continue to be the greatest reward for the physician. We believe that young men should be taught that their greatest opportunity to serve the public lies in this field of general practice and the family doctor relationship.

Several means have been adopted with the view of accomplishing this including the preceptorship and including the general practice clinics of the University of Tennessee. There can, of course, be no agreement as yet as to which means of instruction is best. As a matter of fact, doubt might even be cast that it is possible in any brief period of time to teach a man how to be a doctor. Nonetheless, definite progress has been made and it is our belief that further advance should be encouraged.

From *The New Orleans Medical and Surgical Journal*, 104:763, 1952.

The Porphyrias

Diagnosis and treatment of this not uncommon disease are discussed in detail.

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Porphyria has been recognized for many years as a disease and has received considerable attention in the medical literature. However, since the disease was considered relatively rare, it has been neglected in medical teaching and is unfamiliar to most physicians. Reports have appeared in the literature indicating that the disease is not as uncommon or unusual as previously supposed[1,2], and that many more cases would probably be detected if more about the disease was known. Its early recognition is rather important because, according to Geissler[3], the failure to do so "has often led mistakenly to surgical intervention because a diagnosis of intestinal obstruction, peptic ulcer, gall stones, renal calculus, or even appendicitis was made. The absence of organic changes has led to the assumption of hysteria or malingering."

STRUCTURE AND OCCURENCE

Porphyrins are chemical compounds participating in the normal pigment metabolism and occurring throughout the plant and animal worlds. Because of their occurrence in hemoglobin, in bile pigments, in chlorophyll and in the widely distributed coloring matter cytochrome, they appear to be of special interest in medicine. All porphyrins have a common chemical structure; namely, four pyrrole rings bound by four additional carbon atoms and capable

1. Nesbitt, S. and Watkins, Ch. H: Acute Porphyria. *Am. J. Med. Sciences* 203:74, 1942.
2. Nesbitt, S., *J.A.M.A.* 124:286, 1944.
3. Geissler, J., *Klin. Wehnschr.* 18:378, 1939.

of forming compounds with metals. The porphyrin occurring in the blood pigment is called protoporphyrin and this, when combined with iron and the protein fraction, globin, forms the basis for hemoglobin.

The term "hematoporphyria," as first introduced by Gunther, is no longer accepted clinically in the strict sense, since it refers to a compound, hematoporphyrin, which does not occur in nature. On the other hand, two porphyrins appear to be the most important in cases of pathologic porphyrinuria; namely (1) coproporphyrin, which occurs in normal feces, and (2) uroporphyrin, which is found in small quantity in normal urine. These two porphyrins as they occur normally are probably derived from plant and animal tissue taken in as food. In certain pathologic conditions both of these porphyrins are produced in excess in a manner as yet unknown and excreted.

CLASSIFICATION

There are two main types of porphyria: acute and congenital.

Acute porphyria — Acute porphyria has been further subclassified as toxic or idiopathic, depending on whether a causative agent is found. Several investigators state that both the acute toxic porphyria and the acute idiopathic porphyria probably represent the same condition and are indistinguishable either clinically or by laboratory methods. It is assumed, according to these authors, that both forms are produced by some toxic agent which in the acute idiopathic form has not been identified, while in the acute toxic form it is usually a barbiturate or one of the members of the sulfonamide group. Anxiety, exhaustion and infection can also act as precipitating factors for the acute toxic form.

Both the acute toxic and acute idiopathic forms are more common among women than men; in women the condition usually is associated with menstrual disorders.

Congenital porphyria —Congenital porphria, as the name implies, is often manifested early in life, and is a disease inherited as a recessive Mendelian characteristic. It is characterized clinically by the color of the urine, caused by excretion of large amounts of porphyrin in the urine, sensitivity of the skin to light, and pigmentation of the teeth and bones.

In general, the cutaneous phenomena dominate, varying from simple erythema to vesicle formation and large bullae filled with an odorless or bloodstained fluid which is said to be caused by the sensitivity of the skin to ultraviolet rays. This skin sensitivity, usually evident in childhood, affects mainly the hands, neck and face. Healing leaves permanent scars, and in some cases a brownish pigmentation of the original lesions. Although the condition continues through life and can be avoided as long as precaution against excessive sunlight is taken, the fact is stressed that the prognosis should be guarded since in cases like these there is a great tendency toward the development of a fulminating type of pulmonary tuberculosis. Congenital porphyria is considered a rather rare but an extremely chronic disease.

CHARACTERISTICS

Both the acute toxic and the acute idiopathic forms of porphyria occur usually between the second and fifth decades, and are characterized by the excretion of port-wine urine, in addition to symptoms referable to the gastro-intestinal tract and central nervous system. These forms may also be familial and then are inherited as a dominant Mendelian characteristic. It has been shown by

Waldenstrom[4] and Turner[5] that even the acute forms of porphyria are a chronic condition characterized usually by exacerbations and remissions over a period of time ranging from months to as long as twenty-five years. In the past a patient from time to time may have suffered from any of an assortment of ill-defined complaints, such as poorly localized abdominal pain, pain in the extremities, nervousness, insomnia, depression, and generalized or localized weakness. Occasionally, the urine would be an unusually dark or red color. It also may have been noted that perhaps because of these early complaints, the patient has been taking certain medications, or he may have otherwise resorted to certain toxic agents such as barbiturates and sulfonamides.

SYMPTOMS

The acute episode is characterized, in addition to the excretion of the (port-wine) urine, by gastro intestinal disturbances and/or involvement of the central nervous system. The outstanding gastrointestinal symptoms are abdominal pain abrupt in onset, although vague pains may precede it. The pain is often colicky in nature and is frequently associated with nausea, vomiting, and constipation. These may simulate acute appendicitis or bowel obstruction, and not infrequently, a laparotomy has been performed. The intestines exhibit hyperactive peristalsis with local or generalized spasm and dilated loops of small intestine.

Central nervous system—The neurologic symptoms are diverse and may assume a variety of forms. Neurotic pain is outstanding and paresthesia is common. Involvement of motor nerves often leads to wrist drop and foot drop. Frequently there is ascending paralysis in the form of Landry's paralysis, with pain and muscular atrophy. The paresis sometimes involves only a small muscle group, sometimes practically all the striated muscles of the body, or there may be ptosis, facial palsy, diplopia, dysphonia, or dysphagia.

Respiratory failure due to bulbar palsy is a frequent occurrence and then is usually the cause of death. Psychotic behavior, usually of the type of a toxic psychosis or manic depressive, may be a feature of the disease. If symptoms referable to the central nervous system or psychic disturbances are present, the prognosis is considered very poor. The mortality rate in these cases is about 75 per cent or higher.

DIAGNOSIS

The diagnosis of porphyria of any type depends upon the history and evaluation of the clinical picture and must be confirmed by examination of the urine. The diagnosis will be made only if this condition is borne in mind and considered as a possibility in any case of unusual abdominal complaints or symptoms referable to the central nervous system, especially when occurring together or when associated with excretion of abnormally colored urine.

Detection of uroporphyrin in the urine is the most pathognomonic feature of this disorder. This can be demonstrated by spectrosopic examination or by the Watson-Schwartz test, which consists of the addition of Ehrlich's aldehyde to the urine, followed by the addition of chloroform. This is then shaken and a

4. Waldenstrom, Jan: Studies on Porphyria, *Acta med. Scandinav.*, 1937 supp. 82: pp. 1-254.

5. Turner, W. L.: Studies on porphyria III, Acute Idiopathic Porphyria, *Arch. Int. Med.*, 61:762-773, May, 1938.

characteristic red color appears.

Other laboratory data are usually of no avail. Leukocytosis is said to be present during the acute attack, but this adds to the confusion, especially in differentiating porphyria from an acute condition within the abdomen. Spinal fluid examination is said to be of assistance only in ruling out other conditions of the central nervous system.

Differential diagnosis—Because of the many symptoms which porphyria can produce, it is obvious that the differential diagnosis would involve many possibilities. As stated previously, the acute episode usually is characterized by severe abdominal pain, nausea, vomiting, constipation, which at times might amount to complete ileus, as well as fever, and even marked leukocytosis. Thus, on the surface the problem may appear to be a surgical one, and patients are operated upon with a mistaken diagnosis of acute appendicitis, cholecystitis, surgical ileus, and, if menstrual disorders are present, of ectopic pregnancy or ovarian cysts. In addition, the appearance of red urine might occasionally be mistaken as a symptom of nephritis or other involvement of the urinary tract.

Because of the extreme liability of the blood pressure and the skin pigmentation, a diagnosis of Addison's disease is sometimes considered. The neurologic symptoms of porphyria also suggest a multitude of possibilities. Because of Landry's paralysis, infectious polyneuritis, which includes the Gullian-Barre syndrome, acute febrile polyneuritis and acute polyneuritis with facial diplegia can be mistakenly assigned as diagnoses. Mental symptoms occasionally dominate the clinical picture of porphyrinuria, and this condition not being considered, a diagnosis of schizophrenia or effective psychosis is assigned to the patient.

PROGNOSIS

It should again be emphasized that the disease in reality is a chronic one and that after its first appearance it may extend over a period of time ranging from months to many years. However, the prognosis should be guarded, especially in the acute type of porphyria, since the mortality rate is high. This is particularly true in cases in which neurologic symptoms are present. The mortality rate ranges from 75 to 90 per cent of the cases. The most frequent causes of death are respiratory failure resulting from bulbar palsy, secondary infections, especially pneumonia which may result from the patient's general debilitated condition associated frequently with bulbar weakness, and hepatic insufficiency[1,4,9].

TREATMENT

Treatment of a specific character has not been found, since the cause of the disorder remains unknown, except in cases of toxic etiology. In these cases it is important to remove all elements of a toxic nature, particularly drugs and heavy metals. Otherwise, only symptomatic and supportive measures are available, except that in the congenital type exposure to sunlight should be avoided and the skin lesions be protected from secondary infections.

Therapeutic measures which are said to prevent the excretion of porphyrins and which are said to obtain clinical remissions for indefinite periods of time are liver extract and high doses of vitamins B and C, which have been used with varying results. The intravenous use

of calcium has also been reported as improving the manifestations of the acute prophyrias by diminishing the excretion of the porphyrin in the urine as well as to relieve the abdominal pain.

Physical and mental fatigue, as well as any infection, should be avoided insofar as possible. The nutritional status of the patient must be maintained, and this is particularly important with occurrence of jaundice and severe hepatic damage. If neurologic manifestations should occur, the patient must be watched closely for evidence of bulbar weakness. Finally, if the psychotic manifestations dominate the picture, the use of convulsive therapy, such as electroshock and metrazol shock, has been reported favorably. Otherwise, the therapy is purely symptomatic and supportive.

SUMMARY

The porphyrias have been discussed with special emphasis on psychologic consideration, etiologic classification, clinical, diagnostic, differential diagnostic, prognostic and therapeutic aspects. It should again be mentioned that this disease is not as infrequent or unusual as previously assumed. The diagnosis will be made only if its possibility is borne in mind and considered as a possibility in cases in which abdominal complaints and symptoms referable to the central nervous system are present, especially when occurring together; or when associated with the excretion of abnormally colored urine; if all other diagnostic investigations have proved to be unable to explain the entire symptomatology presented by the patients.

Bacterial Spectrum of Erythromycin and Carbomycin

Two new antibiotics have recently been described in the literature, namely "erythromycin" and "carbomycin." Both are active against gram-positive bacteria in low concentrations, and certain gram-negative organisms. Erythromycin has been reported to be effective against rickettsia and large viruses. The authors now provide a systematic tabulation of the effectiveness of these two antibiotics against various bacterial species as compared with chloramphenicol, aureomycin, and terramycin.

Both erythromycin and carbomycin are produced by strains of streptomyces, the first by *streptomyces erythreus*, and the second by *streptomyces halstedii*. The results of this comparative study indicate that erythromycin has a bacterial spectrum similar to that of penicillin, but is more effective against streptococci and pneumococci than the other broad spectrum antibiotics, i.e., aureomycin, terramycin and chloramphenicol. It was also observed that carbomycin required in most instances a higher concentration than erythromycin to inhibit the growth of most of the test organisms. Another significant finding was that several strains of *staph. pyogenes* var. *aureus* which were resistant to these broad spectrum antibiotics were sensitive to erythromycin and, to a lesser extent, also to carbomycin. Some of these strains were, moreover, highly resistant to penicillin.

(Welch, H. *et al. Antibiot. & Chemother.* 2:693, 1952.)

In Therapy — Radium or X-Ray?

Discussion of radiotherapy as the treatment of choice in various malignant tumors

J. ERNEST BREED, M.D., *Breed Radium Institute, Chicago, Illinois*

A great deal of confusion exists in the minds of many physicians as to when Roentgen rays should be used and when radium should be employed in the treatment of carcinoma and allied diseases. Indeed, a still greater question is, which tumors should be treated surgically and which should be attacked by irradiation. Space does not permit elaboration at this time hence this article will be confined to the factors and logic that dictate the type of irradiation best suited to effect a cure after treatment by ionizing rays has been decided upon.

In dealing with malignant disease the first question the radiologist should ask is: "Does the patient have a good chance for complete recovery?" If the question can be answered in the affirmative, then heroic methods are justified. If, however, little or no chance for complete recovery exists, then heroic measures only increase the patient's discomfort and shorten his life.

OBJECT OF TREATMENT

The ionization of tissue will produce death of all living cells if a sufficient dosage is given. Certain inflammatory states may be corrected with little ionization through action still little understood. The major problem in radiation therapy, however, has to do with the destruction of living tissues. Fortunately, malignant cells are as a rule much more sensitive to ionization than normal body cells. The sensitivity of each tumor is peculiar to itself, although in a general way neoplasms arising from the same tissue are somewhat similar in their sensitivity. The normal cells in the tumor bed, or the tissues adjacent to the tumor, also vary in their sensitivity. The object of radiation therapy is to administer sufficient ionization to the tumor to

kill every malignant cell and at the same time to spare the normal cells. Sometime clinical cures result even if some malignant cells remain alive as long as the tumor bed is intact, for cancer cells may be locked in the fibrous tissue of the tumor bed and remain dormant indefinitely. If the tumor bed is destroyed the result is more likely to be a regrowth of the cancer rather than a simple radiation ulcer.

IONIZATION

Ionization is defined as "the dissociation of a substance in solution into its constituent ions." An ion is described as "an atom or group of atoms having a charge of positive or negative electricity."

When photons of Roentgen or gamma rays or when energized electrons (beta rays) pass through tissues, orbital electrons are knocked free from the atoms in the tissues. These atoms short of a negative ion are therefore positively charged and the ejected electrons striking adjacent atoms cause them also to be ionized. Chemical union of an atom of one element with an atom of another element is thought to be due to the sharing of electrons in the outer electron ring. When these electrons are disturbed through ionization, chemical change undoubtedly takes place.

Exactly why living cells die when some of their component atoms are ionized is not known. Some cells lose their staining properties and undergo rupture of their membranes. Others seem little changed but lose their power of mitosis. All cells appear to be much more sensitive to irradiation during the process of cell division.

Ionization of tissues may be produced by many agents. Energized subatomic particles, such as neutrons, electrons, protons or alpha rays (helium atoms), are very efficient ionizers. In therapy, except experimentally, only Roentgen-rays of varying energies, gamma rays from radium or cobalt, or beta rays from radium or some of the isotopes are used.

THE TISSUES

All cancers invade the adjacent tissues. So called invasive or inverting cancers may almost be buried in the surrounding normal tissues, while everting or papillary growths may for the most part protrude from the surface of the skin or organ in which they are located. The tissues surrounding the invasive neoplasm react in a variety of ways to the invasion of the growth. Roung cell infiltration is at times observed. Often an effort is made to wall off the growth by an increase in fibrous tissue in the tumor bed. Often no evident change is found.

Cancers that are very sensitive to ionizing rays may easily be completely destroyed by the therapist without hurting the tumor bed. Unfortunately, most malignant cells are not markedly radio-sensitive. This is particularly true when they are in the resting stage. In any given case the safest procedure is for the therapist to administer as much ionization in the region of the tumor as the normal tissues will stand. As all normal tissues vary in their sensitivity, it follows that the maximum dose permissible differs in every case and cannot be known in advance. Only by using the divided dose technic and spreading the treatment over a period long enough for the therapist to observe the reaction in the tissues can the optimum dose be delivered.

In deep therapy, great care must be used to protect relatively sensitive normal tissues that lie in the therapy beam.

RADIATION PHYSICS

Radiation physics is complicated and involved. Only a few pertinent facts need be mentioned in this article.

The inverse square law, of vital importance in radiation therapy, states that the intensity of irradiation varies inversely as the square of the distance from the source assuming the source to be a point. If a point source of radium is placed 1 cm. from the skin, the dose rate on the skin is four times as rapid as it would be if the same source were placed 2 cm. from the skin. It is obvious that at close distances from the applicator to the tumor surface the tumor bed receives much less ionization than does the tumor. Likewise, if the radium or Roentgen therapy tube is placed 20 cm. from the surface of the tumor, the tumor bed will receive almost the same dose as the tumor, assuming the tumor to be only 1 to 2 cm. in thickness. When the "contact" Roentgen ray tube is used, it can be placed as close as 1 to 2 cm. from the surface of the growth. Unfortunately, as the safety of the patient must be safeguarded, only Roentgen rays of low voltage can be produced.

Radio waves, infra-red rays, visible light, ultra violet, Roentgen rays and gamma rays are all electromagnetic waves and differ only in their wave length. The shorter the wave length the more penetrating the ray and the greater the power as measured in volts. Roentgen rays used for superficial therapy usually carry a peak voltage of about 100,000 volts, deep therapy of about 200,000 volts, and supervoltage therapy from 1 to 2 million volts. The average Roentgen rays that emit from the tube during therapy are of about half the peak voltage. Radium gamma rays vary from about ½ to 3 million volts, with the average of a little more than 1 million volts. Roentgen rays of low voltage tend to be deflected as they pass through tissue, ionizing as they go so that the "dose in-air" is quite different than the tissue dose which is figured with "back scatter."

In the past many contended that the gamma rays of radium were much more effective than Roentgen rays. It is generally agreed now that the effect of ionization is the same from either source. The clinical differences are apparently due to differences in the ionization pattern.

Beta rays from radium are ideal for the treatment of superficial skin cancers, keratosis of the skin, leukoplakia of the mucous membranes, and intractable inflammations of the cornea. Beta rays are electrons thrown out of disintegrating atoms and are very effective ionizers. Even the most powerful of those given off from radium, however, will not penetrate more than 1 cm. of tissue.

CLINICAL APPLICATION OF IRRADIATION

Ralston Paterson, in his book "Treatment of Malignant Disease by Radium and X-Rays," lists his classification of malignant tumors in regard to radiation treatment as follows:

1. Radiotherapy the Treatment of Choice.
   - (a) Sensitive Tumors
     - Those of embryonal origin
     - Those of reticulo-endothelial origin
     - Neuroblastoma
   - (b) Tumors of Limited Sensitivity in Accessible Sites
     - Carcinoma of the mouth, including tongue and lip

Carcinoma of the skin of face and hands
Carcinoma of the cervic uteri
Carcinoma of the vagina
Carcinoma of the anus, if of limited size
Carcinoma of the bladder, if of limited size
Carcinoma of the maxillary antrum
Intrinsic carcinoma of the larynx, if limited to the cord
Retinal glioma

2. Radiotherapy and Surgical Extirpation both of value.

(a) Predominantly Surgical
Carcinoma of the breast
Secondary carcinoma in lymph nodes
Mixed tumor of the parotid

(b) Surgery and radiotherapy alternatives:
Carcinoma of the corpus uteri
Carcinoma of the vulva
Carcinoma of the penis and scrotum
Carcinoma of the skin (of the trunk and limbs, but not face and hands)

3. Radiotherapy indicated, but of limited value:

(a) Curative value low: palliative value high
Carcinoma of the kidney (hypernephroma)
Carcinoma of the ovary, except embryonal
Cerebral tumors
Carcinoma of the larynx — other than limited to the cord
Carcinoma of the bladder, other than limited
Thyroid tumors
Salivary gland tumors (other than parotid)
Carcinoma of the pharynx
Carcinoma of the ethmoid
Carcinoma of the oesophagus
Primary lung carcinoma
Malignant mediastinal tumor
Isolated bone metastasis

(b) Radiotherapy of value only for relief of symptoms
Tumors in group 1 (a) even in the late stages
Carcinomata in group 1 (b) and (2) in advanced but not terminal stages
Tumors in group 3 (a) in moderately advanced stages only

(c) Radiotherapy used for "growth restraint"
Inoperable resistant growths.

In discussing the surface radium applicator, Dr. Paterson states that "it enables radiation to be given without trauma to a zone of tissue almost exactly limited to the tumor bearing zone." He also lists the available methods of irradiation in descending order of merit as follows:[2]

1. Radium applicator (mould)
2. Single small-field x-ray — low voltage
3. Single small-field x-ray — high voltage
4. Radium implantation
5. Intercavitary radium
6. Cross-fire small-field x-ray
7. Radium beam therapy
8. Large-field x-ray therapy
9. Regional therapy
10. Bath therapy.

He also states: "It is a good generalization in regard to the choice between radium and x-ray therapy to favor local radium for all accessible lesions of limited size and to prefer x-ray for deeper lesions and all larger or disseminated lesions.[2]

Dr. Paterson confines his work to radiation therapy and has at his command adequate equipment for either type of treatment. He is recognized to-day as one of the outstanding radiation therapists in the world.

In the United States few radiologists confine themselves to therapy.

Most therapy, therefore, is done by men who spend the major part of their time in diagnostic radiology. In many parts of the country this is necessary from an economic standpoint but there is a strong move to separate diagnostic radiology from therapy wherever possible, as is common in Europe. It is inconceivable that one who devotes only a small part of his time to therapy would have at hand either the armamentarium for all types of treatment or adequate experience for its use. The use of radium in particular suffers, for radium is expensive, dangerous to handle and the average American radiologist has had little experience in its use.

From the facts and the logic presented, it is evident that in tumors of the skin that are equally accessible to radium and roentgen ray better results can be expected with radium although Roentgen ray can be used effectively. For tumors within body cavities that are accessible to radium but not Roentgen rays, as in the vagina or the mouth, the use of radium is essential for routinely good results. The supplementary external irradiation frequently used in these cases can be better performed with Roentgen rays.

Radium, except in the form of very powerful packs, has no place in the treatment of deep seated inaccessible tumors. In these cases, deep Roentgen therapy should be used. It is probable that eventually supervoltage Roentgen rays or the cobalt bomb will prove to be best, as a more uniform depth dose can be delivered with less "back scatter" and less injury to normal organs. It must be remembered that the tumor bed receives a greater dose than the tumor and that only radio-sensitive tumors will be destroyed. Palliation may be expected, however, for patients with moderately sensitive tumors.

SUMMARY

The problem in radiation therapy is to deliver ionizing rays to pathologic tissues that are more sensitive than the adjacent normal structures. When the difference in sensitivity is great, good results are obtained whether the pathologic tissue is deeply situated in the body or on the surface. When the difference is not great, only those pathologic tissues that are accessible can be expected to give uniformly good results.

The tumor bed must be preserved if good results are to be expected in the treatment of relatively sensitive cancers. Adequate ionization of the tumor with little danger to the tumor bed in accessible tumors can best be obtained with radium as it can be placed close to the tumor or even placed within the growth.

Due to the inverse square law the source of radiation must be far removed from the surface of the body if adequate dosages are to be delivered deep within the body. This requires a great quantity of rays and can only be delivered by Roentgen-ray or great quantities of cobalt 60. Only senstitive tumors located deeply will be cured although great palliation may be given to a large number of patients suffering with less sensitive tumors. Great care must be used in treating these tumors as irreparable damage may be done to relatively senstive normal tissues that lie in the treatment area.

1. Paterson, Ralston: *The Treatment of Malignant Disease by Radium and X-Rays*, p. 21. The Williams & Williams Company, Baltimore, Md., 1949.
2. *Ibid.*, p. 30.
3. *Ibid.*, p. 33.

Syphilitic Aortitis

Prognosis and treatment of preventable syphilitic cardiovascular disease

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The incidence of cardiovascular syphilis has decreased markedly in the past decade. It is acknowledged that this decrease is the result of more adequate therapy. Syphilitic cardiovascular disease is still of interest because it remains the one type of heart disease that is preventable. Further decrease in the incidence of this disease is completely possible if vigilance is maintained in uncovering cases of syphilis and instituting adequate treatment.

Syphilitic involvement of the aorta begins early in the course of the infection. The aorta is seeded with spirochetes in the primary and secondary (spirochetemic) stages. The infection is completely eradicable at this stage by adequate antisyphilitic therapy. In untreated syphilis, the aortic infection pursues a slow course, producing endarteritic changes in the vasa vasorum of the adventitia with resulting damage to the media. The muscle bundles are eventually distorted, broken and replaced by fibrous tissue. It is this change in the media that produces the loss of elasticity of the aortic wall with resulting dilatation. The intima is also involved in this process. These changes in the aorta are progressive and become clinically demonstrable in from two to ten or more years after the initial infection.

UNCOMPLICATED (Asymptomatic) AORTITIS

Uncomplicated aortitis is the earliest phase of cardiovascular syphilis that may be recognized clinically. Symptoms are not present at this stage; subjective symptoms are always referable to complications of this process, which will be discussed in subsequent paragraphs. The essential finding in this condition is dilatation of the aorta due to the patho-

logic process. This dilatation is seen most commonly in the supracardiac (ascending) portion of the aorta, less frequently in the arch and descending aorta, and rarely in the abdominal aorta.

Physical signs may suggest the diagnosis of uncomplicated aortitis. A systolic murmur at the aortic area and or an accentuated, bell-like, second aortic sound may raise the suspicion of this disease, but are not diagnostic. The diagnosis can be made with certainty only by Roentgenoscopic or fluoroscopic examination. Characteristic fusiform dilatation of the appropriate portion of the aorta with increased amplitude of aortic pulsations is the characteristic finding. Even this finding is subject to qualification. The same physical and roentgenographic signs may be seen in other conditions such as hypertension, arteriosclerosis, hyperthyroidism and rheumatic fever. It has been stated that the diagnosis of uncomplicated syphilitic aortitis should not be made in a person more than forty years of age because of the high incidence of similar findings in older persons without syphilis. It is our feeling, however, that by restricting the diagnosis to patients under forty, many cases will be missed.

How then, with these stringent qualifications may the diagnosis of uncomplicated aortitis be established? It is our policy to make this diagnosis in relatively young individuals with evidences of syphilis, or a well-documented history of it, who present the characteristic roentgen picture. The prognosis for survival in uncomplicated syphilitic aortitis is unlimited.

As the aortitic process progresses other changes may occur which may be productive or symptoms.

Aneurysm—Progressive weakening and dilatation of the aortic wall may produce localized or fusiform aneurysmal formation. The typical saccular aneurysm may be completely asymptomatic and discovered fortuitously on routine X-ray examination of the chest. Pressure on the oesophagus may cause dysphagia. Compression of a bronchus may cause chronic pulmonary changes with superimposed suppurative infection; cough is common. Pressure against the costal cage may cause pain and erosion of bone.

The prognosis in saccular aneurysm of the aorta depends upon the changes within the aneurysm, and its location. Many aneurysms become filled by thrombus formation, producing a hard, thick wall. These do not pulsate on examination and, apart from possible pressure exerted on other structures, are no threat to the patient. Rupture of an aneurysm produces sudden death. The location of the pressure exerted by an aneurysm may be the factor responsible for death, as in suppurative or chronic lung disease.

Coronary Ostial Stenosis—The intimal layer of the aorta overlying the damaged media becomes puckered and atherosclerotic plaques are often laid down. If this change occurs in the region where the coronary arteries take their origin, the coronary ostia become involved in the process, with resulting narrowing. The subsequent decreased blood flow through the coronary arteries may produce classical anginal syndrome and electrocardiographic evidence of myocardial fibrosis. This syndrome is indistinguishable from that of coronary atherosclerosis.

Myocardial infarction is not usually the result of coronary ostial stenosis. Instances of complete obliteration of one coronary ostium have been seen without myocardial infarction. The reason for this is that the stenotic process is a slow one and the gradual decrease in caliber of

the coronary ostia permits development of collateral circulation, insuring adequate blood supply to the myocardium.

The diagnosis of coronary ostial stenosis is difficult often impossible to establish. When present it carries with it a poor prognosis.

Aortic Insufficiency. (Regurgitation) — As stated before, syphilitic aortitis most commonly affects the supracardiac portion of the aorta. As a result, the aortic ring is frequently affected by the same process. The dilatation of the aortic ring results in separation of the commissures between the leaflets of the aortic valve. It is this, and not valvular deformity per se (as in rheumatic heart disease), that produces incompetence of the aortic valve.

The signs of this lesion are too well known to bear repetition here. Aortic insufficiency causes cardiac enlargement and subsequent heart failure.

The prognosis in syphilitic aortic insufficiency is variable. Instances of rapid decompensation and death have been observed. Other patients have lived for twelve or more years with marked cardiac enlargement, despite many bouts of congestive heart failure. In general, the prognosis in this disease depends upon the size of the heart; the larger the heart, the poorer the prognosis. It has been stated that the average survival period after signs of heart failure appear is from one to two years. We have observed many exceptions to this "rule".

It is our experience that patients in cardiac failure due to this disease respond as well to the usual measures for congestive heart failure as do patients with other types of heart disease. Diet, rest, and administration of digitalis and mercurial diuretics should be instituted promptly and continued as indicated.

TREATMENT

It is our policy to treat all patients with cardiovascular syphilis who have not had previous adequate antisyphilitic treatment, regardless of the type of lesion present. For this purpose, procaine penicillin in oil with 2 per cent aluminum monosterate is used in dosages of from 6 to 9 million units; it may be given in doses of from 600,000 to 1,200,000 units every one to three days. We have experienced no ill-effects from this treatment. There have been no instances of Herxheimer reaction.

In uncomplicated aortitis it is hoped that treatment will arrest the aortitic process and prevent further structural damage. Where structural change is already present, as in aortic insufficiency, coronary ostial stenosis, or aneurysm, all that can be expected is an arrest of the inflammatory process; nothing can alleviate the anatomical defects already present.

Occasionally a patient will be seen in whom aortic insufficiency is found for the first time, after treatment has been given. We have observed 2 such individuals. We believe that this does not represent an effect of treatment, but, rather, progressive dilatation of the aortic ring on a "wear and tear" basis.

A word may be said concerning the treatment of aneurysms. In thin-walled aneurysms where there is danger of rupture, attempts have been to 1) induce clot formation in the aneurysmal sac by passing a coagulating current directly into the cavity, 2) wrap the aneurysmal sac in cellophane. The former procedure has not been very successful; the latter may hold some promise in skilled hands. However, the incidence of saccular aneurysms is becoming so low that the surgical approach may soon be of historical importance only.

Flat Foot in Infancy and Childhood

Calcaneal valgus is readily recognizable in the nursery and should be corrected before the age of weight bearing

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A case study of more than 500 children in the nursery revealed that actual flat foot in the new-born infant is nearly non-existent. On the other hand, some degree of calcaneal valgus is present among a large percentage of babies. Roughly, 5 per cent of all babies have a severe form of calcaneal valgus, another 5 per cent more have a moderately severe form, and another 5 per cent have a mild form.

The observation of pronated feet in review of children over two years of age is roughly from 12 to 15 per cent, which suggests more than an incidential relationship between calcaneal valgus and pronated feet only in childhood. Study of the relationship of calcaneal valgus to pronated feet over the last five years, with a review of approximately 350 clinical cases, indicates that there is a definite relationship.

The baby with moderate or seve calcaneal valgus has an external r tation of the legs and thighs as we as a relation of the heel cords and tightening of the anterior structur at the ankle. He tends to sleep the abdomen, a position in which th external rotation factor is continue through babyhood, and as he begi to crawl, he tends to contin the calcaneal position of the foot u until the age of weight bearin These children usually walk lat than other children as a result instability due to external rotati of the entire thighs with the to tending to turn outward instead forward. The instability is due to t calcaneus tendency. Weight bearin in this abnormal position results severe stress being applied to t ligamentous and bony structures the feet and ankles so that moldi

of the bones and actual bony deformity results if correction is not spontaneously present.

CONCLUSIONS

1. Babies with incorrected calcaneal valgus tend to develop flat feet at the age of weight bearing due to abnormal stress upon the impressionable foot.

2. Calcaneal valgus is readily recognizable in the nursery and should be corrected before the age of weight bearing.

3. If calcaneal valgus is to be recognized in order that effective treatment may be carried out by the physicians who see the new born, namely the obstetrician, the pediatrician, and the general practitioner. Once bone deformity has developed, treatment is extremely difficult and time consuming.

Isoniazid in Miliary and Meningeal Tuberculosis

The employment of isoniazid in the treatment of uncomplicated miliary infections prompted the conclusion that the antituberculous activity of this substance is equal to and probably slightly superior to that of streptomycin. Additional justification for this conclusion was provided by the results obtained in using this drug in certain meningeal infections.

The study reported was conducted as a joint project of the New York Hospital-Cornell Medical Center and the Navajo and Hopi Indian Reservation in Arizona. The patients treated were children or adults with acute generalized hematogenous (miliary) tuberculosis or tuberculous meningitis or a combination of both forms of tuberculous disease.

Isoniazid was supplied in scored tablets or as a highly purified crystalline powder enclosed in capsules containing from 10 to 25 mg. All of the patients, with few exceptions, received approximately 10 mg. per kilogram of body weight of the drug daily throughout the first week of treatment. The dose thereafter was lowered to between 7 and 5 mg. per kilogram per day in most instances.

The effect of isoniazid on the course of acute miliary tuberculosis was studied particularly in fourteen patients, four of whom also had meningitis. Eleven other patients with tuberculous meningitis (two also had miliary tuberculosis) received isoniazid together with, or subsequent to, streptomycin.

Two deaths occurred from meningitis in the fourteen patients with miliary tuberculosis who were treated with isoniazid alone. The remaining twelve patients thus treated with isoniazid became uniformly free of clinical illness, with regression of roentgenographic abnormalities and a high incidence of reversal of infectiousness.

This therapy is being continued until each patient has received treatment for some 12 months.

(Clark, C. M., Elmendorf, DuM. F. Jr., Cawthon, Muschenheim and McDermott, W., *Am. Rev. Tuberc.*, 66:391-415, Oct. 1952.)

THERAPEUTIC TRENDS

Melanoma

Treatment consists of removal. Other therapeutic measures such as roentgen and radium irradiation and various radiumactive isotopes have been unsatisfactory. Dissection in continuity is the method of choice which is not always easy because of the location of the melanomas and the drainage into various lymph nodes. Some authors have recommended even more radical procedures in some advanced cases of melanoma of the extremities which consist of disarticulation at the hip or amputation of the arm or the shoulder girdle. The generally poor prognosis is improved in more early diagnosis and radical surgical intervention.

(S. W. Becker, *Minnesota Med.*, 34:1153, 1951.)

Hemorrhage in Nose and Throat

Local management of hemorrhage in the nose consists of obtaining a bloodless field and treating the area of hemorrhage at once by cauterization if possible; otherwise, nasal packs are used to stop bleeding. Cauterization is used to close small vessels in the throat. Larger vessels must usually be ligated under local anesthesia. Immediately following local therapy, a regular regime of sedation, vitamin K and other systemic measures, must be instituted to prevent further hemorrhage.

(A. B. Doland. *Ann. District of Columbia*, 3: 144,, 1952.)

Paroxysmal Ventricular Tachycardia

Authors suggest the use of procainamide. In prolonged attacks intravenous injections are necessary. A 10% solution is used which must be injected slowly at the rate of 5 cc. per minute. This treatment is effective more or less rapidly, some times 2 or 3 cc. are sufficient, some times 10 to 15 cc. are necessary. To prevent recurrences the patient should be given, for at least 10 days, two to three Gm. of procaine amide by mouth daily in four fractions. Acute crises of paroxysmal ventricular tachycardia can be treated orally. The daily dose is 4 to 5 Gm. in 4 fractions; this dose can be reduced to 3 and then 2 Gms. when the attacks have ceased.

(F. Siguier and J. J. Welti. *La Presse Médicale*, 59:1304, 1950.)

Acute Lymphatic Leukemia

The authors report on treatment of acute lymphatic leukemia with aminopterin. In 5 of the 12 patients there was no clinical benefit and no improvement of the blood picture. In 7 cases there was improvement. Objectively there was a decrease in the total number and percentage incidence of "blast cells." The improvement with exception of one case persisted for a few days to three months. All traced patients have died. One milligram of aminopterin was given orally daily.

(R. I. Cottle, J. N. Battle, Jr., *Cleveland Clinic Quarterly*, 2:67, 1952.)

Effect of Theophylline in Cardiac Failure

An attempt is made to clarify the apparent anomaly of aminophylline in bringing about increased cardiac output in patients with heart failure while it effects a decreased cerebral blood flow in normal individuals. Cerebral blood flow, oxygen consumption and vascular resistance were therefore studied in sixteen patients with cardiac failure (four with Cheyne-Stokes respiration), before and 5 minutes after intravenous injection of 0.5 Gm. of aminophylline. In six patients a further determination was made 45 minutes after injection.

The cerebral blood flow was found to be initially decreased in all patients; on administration of aminophylline the flow was further reduced in all but one patient. In five patients the flow fell to 50 per cent of the normal level, without apparent effect on mental acuity. Although the difference in oxygen content of the blood entering and leaving the brain increased, the compensation was not sufficient and left a deficit in oxygen utilization. The respiratory rate did not increase significantly, but the depth of respiration increased and gaseous exchange in the lungs improved.

In three of the four patients with Cheyne-Stokes respiration normal rhythm returned in response to aminophylline; but cerebral blood flow was reduced by the drug in the same way as in patients with normal respiratory rhythm.

It is concluded that aminophylline decreases cerebral blood flow by its vasoconstrictor action on the cerebral vessels, with resulting cerebrovascular resistance. The conclusion is supported by the finding that no significant decrease in the carbon dioxide content of the blood entering and leaving the brain could be discovered. It is furthermore suggested that respiratory stimulation is caused by direct action of the drug upon the respiratory center, or that hemostasis in the medulla causes accumulation of carbon dioxide and secondary stimulation of the center.

(Meyer, J. H. *et al*, *J. Clin. Invest.* 31:267, 1952.)

Cation Exchange Resin in the Treatment of Congestive Heart Failure

Twenty-seven patients with congestive heart failure were studied for an average period of 26 weeks for their response to treatment with cation-exchange resin. Carboxylic resin in the ammonium plus potassium cycle was given in doses of 15 Gm. three times a day, supplemented with calcium and vitamins to forestall possible deficiencies of these substances.

Treatment was successful in twenty-three patients; in another group of sixteen patients who had failed to respond to orthodox therapy no fewer than thirteen benefited from the resin treatment.

Commonest complications were constipation, bleeding piles, abdominal cramps, anorexia and nausea; they prevented treatment in five days (not included here). No significant alteration in serum electrolytes was observed. Renal failure and the "low-salt syndrome" did not occur.

It is concluded that the chief value of resins in the treatment of congestive heart failure appears to be (1) as an alternative to mercurial diuretics and (2) in lessening the need for rigid salt restriction, although increases in salt intake must be managed cautiously.

(Counsell, P. B., and Goligher, J. C., *Lancet* 2:1045, 1952.)

Treatment of Tuberculous Meningitis With Streptomycin

The results obtained in 146 cases of tuberculous meningitis treated with streptomycin are analyzed and reported. The clinical criteria adopted for diagnosis are defined. The patients were divided into two groups: those who received streptomycin with regular rest periods (twenty seven patients), and those who were treated with the drug without planned rest periods (119 patients).

The intramuscular dosage of streptomycin was 2 Gm. daily for adults, 1 Gm. for children 5 to 14 years old, and 0.5 Gm. for children under 5 years. The intrathecal dose in these three age groups was 0.1, 0.05 and 0.025 Gm., respectively. In group I, the intrathecal therapy was continued daily for six weeks, and then was followed by one or two weeks of rest, although with considerable variations in individual cases.

The second group received intrathecal therapy daily for three weeks, or less if improvement occurred, after which it was continued on alternate days, rest periods being introduced only if the patients became discouraged. Supplementary treatment included streptokinase in three patients and PAS in two adults with pulmonary disease. Some form of surgery was necessary in twenty-two instances.

Sixty-nine of the total of 149 patients are still alive. Of the twenty-three patients of group I, nine are alive; of those in group II, sixty are alive (40 with normal and twenty with abnormal findings in the spinal fluid).

Three main patterns of response to treatment were noted: (1) a number of patients, usually early cases, showed considerable clinical improvement in two to three weeks and appeared to make a complete recovery; (2) cases admitted in decerebrate rigidity had invariably a fatal ending despite any form of therapy; and (3), in an intermediate group in which decerebrate rigidity never developed, but where a fluctuating clinical picture was manifest for from six to twelve months, treatment, although prolonged and difficult, fully justified perseverance.

(Robertson, F. and Gairdner, D. *Lancet* 1:1170, 1952.)

On Surgical Procedure of the National Committee on Peptic Ulcer

A summary of the results now reported as follows:

The results obtained with partial resection alone were found to be superior to those realized with gastroenterostomy, and equal to those following gastric resection and vagotomy for duodenal ulcer, except for the higher incidence of histamine achlorhydria after vagotomy plus gastric resection.

Vagotomy alone may be superior to gastric resection for gastro-jejunal ulcer, subsequent to a previous gastric resection, for it is attended by a lower mortality.

A final opinion as to the merit of adding vagotomy to gastric resection cannot be given as yet. It likewise remains to be ascertained whether persistent achlorhydria may still be present in one or another of these groups after five years.

(Report of the Committee, *Gastro-enterology* 22:295. 1952.)

Surgical Treatment of Ulcerative Colitis

Of great significance to the general practitioner as well as the surgeon is the admission of the authors that their views on the indications for colectomy in ulcerative colitis have undergone a sharp change in the past two years. The change was prompted by their observation of carcinoma developing in some part of the diseased large bowel in no less than eleven of the ninety patients which form the basis of their present report.

In four of the eleven patients the growth arose in the rectum and was detected on clinical examination. In one other patient an unsuspected rectal carcinoma was discovered at necropsy, and in still another patient an apparently benign structure of the splenic flexure was treated by colectomy and found on microscopy to be a carcinoma. Several carcinomata were discovered in the large bowel of 4 patients after routine colectomy and excision of the rectum. In the 11th patient, an inoperable growth of the transverse colon was revealed at laparotomy intended as preliminary to colectomy. A striking feature of these growths was that they were often multiple and atypical in their appearance; that is, they did not resemble an ulcerative lesion but had instead the appearance of a slight "fibrous" thickening of the bowel wall. Histological examination usually revealed them to be highly active and invasive growths.

In view of the fact that the symptoms and signs produced by a growth in these patients may easily be attributed to an exacerbation of the colitis and the presence of the neoplasm be overlooked, the authors now advocate prophylactic colectomy and removal of the rectum to be the only safe course in all cases of ulcerative colitis in which an ileostomy appears indicated. In fact, this operation is now routine in all ileostomy cases, and patients who had an ileostomy some years ago are being recalled for colectomy and excision of the rectum.

One fact emerges therefore sharply from this review of the surgical management of some ninty ulcerative colitis cases, namely, that ileostomy alone often fails to secure the greatest improvement in general health or to prevent complications such as malignant degeneration, severe hemorrhage, arthritis, and other metastatic manifestations of the disease. A complete cure is achieved only after removal of both colon and rectum.

(Klingensmith, W. C., and Elkinton, J. R., *Circulation* 5:842, 1952.)

Diverticulitis of the Colon

The authors recommend to try first conservative management: hospitalization for at least ten days; bland diet; no cold foods or drinks; 10 drops of tincture of belladonna in ½ glass of water 3 times a day before meals; ¼ grain of phenobarbital, 3 times a day. Continuous moist heat to the abdomen; no cathartics; if no bowel movement has occurred by the fourth day, 6 ozs. of warm oil are instilled into the rectum. If results again fail, an ordinary enema is given the next day. Surgical management may be necessary if the process advances to: 1) perforation with abscess or peritonitis; 2) fistula formation to skin, bladder, urethra, vagina or bowels; 3) intestinal obstruction; 4) possibility of cancer; 5) recurrent severe attacks.

(H. L. Albright, F. C. Leonard. *Am. J. Surg.*, 82:674, 1951.)

BOOK REVIEWS

SEX AFTER FORTY, by S. A. Lewin, M.D., and John Gilmore, Ph.D. $3.50. Medical Research Press, New York 17, N.Y., 1952.

In this well-written treatise the authors attempt to dispel the superstitions surrounding the sexual activities which are possible or desirable in the climacteric and later years. They present in clear and simple language, and without condescension to the layman, the principal facts of anatomy, physiology and endocrinology relevant to the subject. They include, also, a brief and lucid discussion of the psychological aspects of sexual activity and of aging, with specific suggestions rather than generalities.

The possibility of psychiatric disorder occurring in the climacteric is presented frankly and without alarmist propaganda. The reader is reminded of help to be had from a properly trained clergyman, and is given a list of organizations concerned with marriage counseling, family relations, and mental hygiene.

A group of case histories illustrating the treatment of various common emotional and other problems related to sexual activity concludes the discussion.

This book, which the publisher says is "available to the public only upon recommendation of a physician, minister, or qualified marriage counselor," should be helpful to any interested layman.

RHEUMATIC FEVER—A SYMPOSIUM. Edited by Lewis Thomas, M.D. $10.00. Twenty-three papers presented at the University of Minnesota, November 29 to December 1, 1951. University of Minnesota Press, Minneapolis, Minnesota, 1952.

This book represents an exhaustive, and comprehensive review of the current status of rheumatic fever with particular emphasis on newer concepts of etiology, pathology, epidemiology, and therapy. The original papers contained herein are by investigators of repute in this field. The overall material is couched in 644 references which attest to the thoroughness of individual presentations. While the general practitioner and clinician may find some of the more academic, experimental, and laboratory investigations rather ponderous, there are abundant clinical data of practical value to more than justify having this book in his library.

Whether utilized as simply a reference text or a broad refresher course in this most important disease, the general practitioner who acquires the book will not find it an idle occupant of his library. In his introduction to the symposium, McQuarrie reminds us that "rheumatic fever, long regarded complacently as nothing more than one of the minor diseases of childhood, now looms as one of our most complex and most baffling medical problems".

NORMAL BLOOD PRESSURE AND HYPERTENSION, by Arthur M. Master, M.D., Charles L. Garfield, M.D., and Max B. Walters, M.D. $4.00. Lea and Febiger, Hagerstown, Md.

This monograph of 135 pages is based on a statistical study of the blood pressure in 74,000 unselected, healthy individuals. The first fifty pages of this volume consists of a very interesting historical review of the evolution of blood pressure instruments up to our present machines and also the development of the present commonly accepted limits of normal blood pressure.

The authors of this book have suggested that new tables of normal blood pressure limits be accepted and they indicate that normal blood pressures, both systolic and diastolic, are higher than those prepared by various statisticians during the past twenty years. From their observations they conclude that in the older age groups with no evidence of cardiovascular renal disease the normal systolic range should be from 150 to 160 mm. of mercury, and the diastolic range from 95 to 100 mm. of mercury.

The most important conclusions to be drawn from this volume are: 1. That the diastolic readings should be taken when all sound has disappeared, as there is too much variation in proper diastolic readings if they are taken during the fourth phase or muffling of the sound. 2. That some individuals have normal blood pressure in spite of a systolic of 160 mm. and a diastolic of 100 mm. of mercury.

This monograph should be of extreme value to scientific investigators and all clinicians interested in this problem of blood pressure and hypertension.

DIABETIC GLOMERULOSCLEROSIS — THE SPECIFIC RENAL DISEASE OF DIABETES MELLITUS. By Harold Rifkin, M.D., Louis Leiter, M.D., and James Berkman, M.D., College of Physicians and Surgeons, Columbia University, N.Y. $3.50. Charles C. Thomas, Springfield, Illinois, 1952.

This monograph, number 130 in the "American Lectures In Metabolism," stresses three significant facts. 1. The relative frequency of this disease in individuals under 40, who have had diabetes for a fairly long time. 2. The high frequency of vascular lesions, notably in the kidneys, heart, and retinas of patients who have had diabetes for ten to fifteen years; that "vascular nephritis," or diabetic glomerulosclerosis has taken first place as the cause of death in diabetic children after 20 years of their metabolic disorder. 3. That the relationship of this process to high protein or low cholestrol diets, fluctuating hypoglycemic episodes, specific vitamin deficiencies, genetic factors, the type of insulin used, and the emotional state of the patient must all be considered and carefully evaluated in order to recognize this clinical entity, especially in the early stages.

An analysis of clinical data, the clinical syndrome, laboratory aids in diagnosis, in differential diagnosis, the pathogenesis, the pathology and treatment are well covered. The blood pressure should be taken at each visit, the urine studied for albumin in addition to glucose, the urinary sediment searched for presence of doubly refractile fatty cells and casts, the fundi scrutinized for early retinal changes, and edema in the diabetic. These are the only present means available for the early detection or prevention of glomerudegenerative changes. It is a thought-provoking monograph anent the development of vascular degeneration.

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